



CONTAINS NO CBI

**American Cyanamid Company**

Chemicals Group  
Toxicology and Product Safety Department  
One Cyanamid Plaza  
Wayne, NJ 07470  
Fax: 201-831-3400

**CERTIFIED MAIL**

June 26, 1989

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Document Processing Center  
Office of Toxic Substances (TS-790)  
U.S. Environmental Protection Agency  
401 M Street, S.W.  
Washington, D.C. 20460

Attention: CAIR Reporting Office

Gentlemen:

Enclosed is a completed CAIR form for 1988 processing of  
2,4-toluenediisocyanate [CAS 584-84-9] for American Cyanamid  
Company, State Route 2, Willow Island, West Virginia 26190.

This form is being submitted in response to the Federal Register  
notices of December 22, 1988 and February 15, 1989.

There are no claims of confidential business information.

Sincerely,

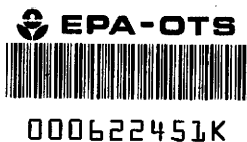
Joan L. Gallagher, Manager  
TSCA Compliance and  
International Registrations  
Toxicology & Product Safety Dept.

JLG:mj  
jg30  
enc. 1

CONTAINS NO CBI



Form Approved  
OMB No. 2010-0019  
Approval Expires 12-31-89



90-890000 331

89 JUN 30 AM 9:24  
OFFICE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Comprehensive Assessment Information Rule  
REPORTING FORM

When completed, send this form to:

Document Processing Center  
Office of Toxic Substances, TS-790  
U.S. Environmental Protection Agency  
401 M Street, SW  
Washington, DC 20460  
Attention: CAIR Reporting Office

For Agency Use Only:

Date of Receipt: \_\_\_\_\_

Document  
Control Number: \_\_\_\_\_

Docket Number: \_\_\_\_\_

SECTION 1 GENERAL MANUFACTURER, IMPORTER, AND PROCESSOR INFORMATION

PART A GENERAL REPORTING INFORMATION

1.01 This Comprehensive Assessment Information Rule (CAIR) Reporting Form has been completed in response to the Federal Register Notice of..... [1][2] [2][2] [8][8]  
CBI mo. day year

- ☐ a. If a Chemical Abstracts Service Number (CAS No.) is provided in the Federal Register, list the CAS No. .... [0][0][0][5][8][4][1]-[8][4]-[9]
- b. If a chemical substance CAS No. is not provided in the Federal Register, list either (i) the chemical name, (ii) the mixture name, or (iii) the trade name of the chemical substance as provided in the Federal Register.
- (i) Chemical name as listed in the rule ..... \_\_\_\_\_
- (ii) Name of mixture as listed in the rule .... \_\_\_\_\_
- (iii) Trade name as listed in the rule ..... \_\_\_\_\_
- c. If a chemical category is provided in the Federal Register, report the name of the category as listed in the rule, the chemical substance CAS No. you are reporting on which falls under the listed category, and the chemical name of the substance you are reporting on which falls under the listed category.
- Name of category as listed in the rule ..... \_\_\_\_\_
- CAS No. of chemical substance ..... [ ][ ][ ][ ][ ][ ]-[ ][ ]-[ ]
- Name of chemical substance ..... \_\_\_\_\_

1.02 Identify your reporting status under CAIR by circling the appropriate response(s).

- CBI Manufacturer ..... 1
- ☐ Importer ..... 2
- Processor ..... ③
- X/P manufacturer reporting for customer who is a processor ..... 4
- X/P processor reporting for customer who is a processor ..... 5

☐ Mark (X) this box if you attach a continuation sheet.

1.03 Does the substance you are reporting on have an "x/p" designation associated with it in the above-listed Federal Register Notice?

CBI

☐ Yes ..... [X] Go to question 1.04

☐ No ..... [☐] Go to question 1.05

1.04 a. Do you manufacture, import, or process the listed substance and distribute it under a trade name(s) different than that listed in the Federal Register Notice? Circle the appropriate response.

CBI

☐ Yes ..... 1

☐ No ..... 2

b. Check the appropriate box below:

☐ You have chosen to notify your customers of their reporting obligations

Provide the trade name(s) ....

☐ You have chosen to report for your customers

☐ You have submitted the trade name(s) to EPA one day after the effective date of the rule in the Federal Register Notice under which you are reporting.

1.05 If you buy a trade name product and are reporting because you were notified of your reporting requirements by your trade name supplier, provide that trade name.

CBI

☐ Trade name ..... "Hylene T," "Mondur TDS"

☐ Is the trade name product a mixture? Circle the appropriate response.

Yes ..... 1

No ..... 2

1.06 Certification -- The person who is responsible for the completion of this form must sign the certification statement below:

CBI

☐ "I hereby certify that, to the best of my knowledge and belief, all information entered on this form is complete and accurate."

D. J. Chatfield  
NAME

  
SIGNATURE

5/5/89  
DATE SIGNED

Plant Manager  
TITLE

( 304 ) 665 - 2422  
TELEPHONE NO.

☐ Mark (X) this box if you attach a continuation sheet.

- 1.07 Exemptions From Reporting -- If you have provided EPA or another Federal agency with the required information on a CAIR Reporting Form for the listed substance within the past 3 years, and this information is current, accurate, and complete for the time period specified in the rule, then sign the certification below. You CBI ☐ are required to complete section 1 of this CAIR form and provide any information now required but not previously submitted. Provide a copy of any previous submissions along with your Section 1 submission.

"I hereby certify that, to the best of my knowledge and belief, all required information which I have not included in this CAIR Reporting Form has been submitted to EPA within the past 3 years and is current, accurate, and complete for the time period specified in the rule."

N/A  
\_\_\_\_\_  
NAME  
\_\_\_\_\_  
TITLE  
\_\_\_\_\_  
( )  
\_\_\_\_\_  
SIGNATURE  
TELEPHONE NO.  
\_\_\_\_\_  
DATE SIGNED  
\_\_\_\_\_  
DATE OF PREVIOUS  
SUBMISSION

- 1.08 CBI Certification -- If you have asserted any CBI claims in this report you must certify that the following statements truthfully and accurately apply to all of those confidentiality claims which you have asserted.

CBI ☐ "My company has taken measures to protect the confidentiality of the information, and it will continue to take these measures; the information is not, and has not been, reasonably ascertainable by other persons (other than government bodies) by using legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding) without my company's consent; the information is not publicly available elsewhere; and disclosure of the information would cause substantial harm to my company's competitive position."

N/A  
\_\_\_\_\_  
NAME  
\_\_\_\_\_  
TITLE  
\_\_\_\_\_  
( )  
\_\_\_\_\_  
SIGNATURE  
TELEPHONE NO.  
\_\_\_\_\_  
DATE SIGNED

☐ Mark (X) this box if you attach a continuation sheet.

### 1.09 Facility Identification

[ ] Address [S][T][A][T][E] [R][O][U][T][E] [2] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]  
Street

[W][I][L][L][O][W] [ ] [I][S][L][A][N][D] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]  
City

W V      2 6 1 9 0 --              
State                      Zip

Dun &amp; Bradstreet Number .....[0][0]-[4][3]4-[1]4[9][1]

**EPA ID Number** ..... [0][0][4][3][4][1][4][9][1]

Employer ID Number .....[1][3][0][4][3][0][8][9][0]

Primary Standard Industrial Classification (SIC) Code .....[2][8][6][9]

Other SIC Code ..... [ 2 ] [ 8 ] [ 4 ] [ 3 ]

Other SIC Code ..... [ 2 ] [ 8 ] [ 9 ] [ 9 ]

[illegible][illegible]

[N][J]      [0][7][4][7][0]--[ ][ ][ ][ ]  
State                      Zip

**Dun & Bradstreet Number** .....[0][0]-[2][1][5]-[0][0][0][1]

Employer ID Number ..... [1] [3] [0] [4] [3] [0] [8] [9] [0]

6

[illegible]

CBI Name [D][I][R][K] [ ] [R] [ ] [F][O][N][T][A][I][N][E] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]  
[ ] Title [E][N][V][I][R][O][N][M][E][N][T][A][L] [ ] [E][N][G][I][N][E][E][R] [ ] [ ] [ ] [ ] [ ] [ ]  
Address [S][T][A][T][E] [ ] [R][O][U][T][E] [ ] [2] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]  
Street  
[W][I][L][L][O][W] [ ] [I][S][L][A][N][D] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]  
City  
[W][V]      [2][6][1][9][0]--[ ][ ][ ]  
State Zip  
Telephone Number ..... [3][0][4]-[6][6][5]-[2][4][2][2]

☐ Mark (X) this box if you attach a continuation sheet.

**CBI**

Name of Seller [ ]  
[ ] Mailing Address [ ]  
Street  
City  
State Zip  
Employer ID Number ..... [ ][ ][ ][ ][ ][ ][ ][ ][ ]  
Date of Sale ..... [ ][ ][ ][ ][ ][ ][ ][ ][ ] Mo. Day Year  
Contact Person [ ]  
Telephone Number ..... [ ][ ][ ][ ][ ][ ][ ][ ][ ]-[ ][ ][ ][ ][ ][ ][ ][ ][ ]-[ ][ ][ ][ ][ ][ ][ ][ ][ ]

[illegible]

8



1.16 For each classification listed below, state the quantity of the listed substance that was manufactured, imported, or processed at your facility during the reporting year.

CBI

<u>Classification</u>	<u>Quantity (kg/yr)</u>
<input type="checkbox"/> Manufactured .....	0.0
Imported .....	0.0
Processed (include quantity repackaged) .....	13971
Of that quantity manufactured or imported, report that quantity:	
In storage at the beginning of the reporting year .....	0.0
For on-site use or processing .....	0.0
For direct commercial distribution (including export) .....	0.0
In storage at the end of the reporting year .....	0.0
Of that quantity processed, report that quantity:	
In storage at the beginning of the reporting year .....	998
Processed as a reactant (chemical producer) .....	13971
Processed as a formulation component (mixture producer) .....	0.0
Processed as an article component (article producer) .....	0.0
Repackaged (including export) .....	0.0
In storage at the end of the reporting year .....	2994

☐ Mark (X) this box if you attach a continuation sheet.

1.17 Mixture -- If the listed substance on which you are required to report is a mixture or a component of a mixture, provide the following information for each component chemical. (If the mixture composition is variable, report an average percentage of each component chemical for all formulations.)

[ ]

Component Name	Supplier Name	Average % Composition by Weight (specify precision, e.g., 45% ± 0.5%)
NA		.
Total		100%

10

2.04 State the quantity of the listed substance that your facility manufactured, imported, or processed during the 3 corporate fiscal years preceding the reporting year in descending order.

CBI

<input type="checkbox"/>	Year ending .....	[1][2]	[8][7]	
		Mo.	Year	
	Quantity manufactured .....	0.0		kg
	Quantity imported .....	0.0		kg
	Quantity processed .....	14969		kg
	Year ending .....	[1][2]	[8][6]	
		Mo.	Year	
	Quantity manufactured .....	0.0		kg
	Quantity imported .....	0.0		kg
	Quantity processed .....	9979		kg
	Year ending .....	[1][2]	[8][5]	
		Mo.	Year	
	Quantity manufactured .....	0.0		kg
	Quantity imported .....	0.0		kg
	Quantity processed .....	12224		kg

2.05 Specify the manner in which you manufactured the listed substance. Circle all appropriate process types.

CBI

☐ N/A

<input type="checkbox"/>	Continuous process .....	1
	Semicontinuous process .....	2
	Batch process .....	3

☐ Mark (X) this box if you attach a continuation sheet.

2.06 Specify the manner in which you processed the listed substance. Circle all appropriate process types.

- ☐ Continuous process ..... 1
- ☐ Semicontinuous process ..... 2
- ☐ Batch process ..... 3

2.07 State your facility's name-plate capacity for manufacturing or processing the listed substance. (If you are a batch manufacturer or batch processor, do not answer this question.)

- ☐ Manufacturing capacity ..... N/A kg/yr
- ☐ Processing capacity ..... N/A kg/yr

2.08 If you intend to increase or decrease the quantity of the listed substance manufactured, imported, or processed at any time after your current corporate fiscal year, estimate the increase or decrease based upon the reporting year's production volume.

<input type="checkbox"/>	Manufacturing Quantity (kg)	Importing Quantity (kg)	Processing Quantity (kg)
Amount of increase	N/A	N/A	Not known
Amount of decrease	N/A	N/A	Not known

☐ Mark (X) this box if you attach a continuation sheet.

2.09 For the three largest volume manufacturing or processing process types involving the listed substance, specify the number of days you manufactured or processed the listed substance during the reporting year. Also specify the average number of hours per day each process type was operated. (If only one or two operations are involved, list those.)

CBI

☐

	<u>Days/Year</u>	<u>Average Hours/Day</u>
Process Type #1 (The process type involving the largest quantity of the listed substance.)		
Manufactured .....	<u>N/A</u>	<u>N/A</u>
Processed .....	<u>18</u>	<u>24</u>
Process Type #2 (The process type involving the 2nd largest quantity of the listed substance.)		
Manufactured .....	<u>N/A</u>	<u>N/A</u>
Processed .....	<u>N/A</u>	<u>N/A</u>
Process Type #3 (The process type involving the 3rd largest quantity of the listed substance.)		
Manufactured .....	<u>N/A</u>	<u>N/A</u>
Processed .....	<u>N/A</u>	<u>N/A</u>

2.10 State the maximum daily inventory and average monthly inventory of the listed substance that was stored on-site during the reporting year in the form of a bulk chemical.

CBI

☐

Maximum daily inventory .....	<u>N/A</u>	kg
Average monthly inventory .....	<u>N/A</u>	kg

☐ Mark (X) this box if you attach a continuation sheet.

2.11 Related Product Types -- List any byproducts, coproducts, or impurities present with the listed substance in concentrations greater than 0.1 percent as it is manufactured, imported, or processed. The source of byproducts, coproducts, or impurities means the source from which the byproducts, coproducts, or impurities are made or introduced into the product (e.g., carryover from raw material, reaction product, etc.).

CBI

☐

N/A

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Byproduct, Coproduct or Impurity</u> <sup>1</sup>	<u>Concentration (%) (specify ± % precision)</u>	<u>Source of Byproducts, Coproducts, or Impurities</u>

<sup>1</sup>Use the following codes to designate byproduct, coproduct, or impurity:

B = Byproduct

C = Coproduct

I = Impurity

☐ Mark (X) this box if you attach a continuation sheet.

- 2.12 Existing Product Types -- List all existing product types which you manufactured, imported, or processed using the listed substance during the reporting year. List the quantity of listed substance you use for each product type as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types <sup>1</sup>	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users <sup>2</sup>
K	100	100 %	I

<sup>1</sup>Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

<sup>2</sup>Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

- 2.13 Expected Product Types -- Identify all product types which you expect to manufacture, import, or process using the listed substance at any time after your current corporate fiscal year. For each use, specify the quantity you expect to manufacture, import, or process for each use as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types <sup>1</sup>	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users <sup>2</sup>
K	100	100%	I

<sup>1</sup>Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

<sup>2</sup>Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.



2.14 Final Product -- Complete the following table for each type of final product manufactured, imported, or processed at your facility that contains the listed substance other than as an impurity.

☐

a.	b.	c.	d.
Product Type <sup>1</sup>	Final Product's Physical Form <sup>2</sup>	Average % Composition of Listed Substance in Final Product	Type of End-Users <sup>3</sup>
N/A	N/A	N/A	N/A

<sup>1</sup>Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

<sup>2</sup>Use the following codes to designate the final product's physical form:

A = Gas	F2 = Crystalline solid
B = Liquid	F3 = Granules
C = Aqueous solution	F4 = Other solid
D = Paste	G = Gel
E = Slurry	H = Other (specify) _____
F1 = Powder	

<sup>3</sup>Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.15 Circle all applicable modes of transportation used to deliver bulk shipments of the  
CBI listed substance to off-site customers.

☐ Truck ..... 1  
Railcar ..... 2  
Barge, Vessel ..... 3  
Pipeline ..... 4  
Plane ..... 5  
Other (specify) N/A ..... 6

2.16 Customer Use -- Estimate the quantity of the listed substance used by your customers  
CBI or prepared by your customers during the reporting year for use under each category  
of end use listed (i-iv).

☐ Category of End Use N/A

i. Industrial Products

Chemical or mixture ..... kg/yr

Article ..... kg/yr

ii. Commercial Products

Chemical or mixture ..... kg/yr

Article ..... kg/yr

iii. Consumer Products

Chemical or mixture ..... kg/yr

Article ..... kg/yr

iv. Other

Distribution (excluding export) ..... kg/yr

Export ..... kg/yr

Quantity of substance consumed as reactant ..... kg/yr

Unknown customer uses ..... kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

### SECTION 3 PROCESSOR RAW MATERIAL IDENTIFICATION

#### PART A GENERAL DATA

3.01 Specify the quantity purchased and the average price paid for the listed substance for each major source of supply listed. Product trades are treated as purchases.

CBI The average price is the market value of the product that was traded for the listed substance.

☐

<u>Source of Supply</u>	<u>Quantity (kg)</u>	<u>Average Price (\$/kg)</u>
The listed substance was manufactured on-site.	N/A	N/A
The listed substance was transferred from a different company site.	N/A	N/A
The listed substance was purchased directly from a manufacturer or importer.	15967	3.9963
The listed substance was purchased from a distributor or repackager.	N/A	N/A
The listed substance was purchased from a mixture producer.	N/A	N/A

3.02 Circle all applicable modes of transportation used to deliver the listed substance to your facility.

CBI

☐

Truck .....	①
Railcar .....	2
Barge, Vessel .....	3
Pipeline .....	4
Plane .....	5
Other (specify) _____	6

☐ Mark (X) this box if you attach a continuation sheet.

3.03 a. Circle all applicable containers used to transport the listed substance to your facility.  
CBI

☐

Bags ..... 1  
Boxes ..... 2  
Free standing tank cylinders ..... 3  
Tank rail cars ..... 4  
Hopper cars ..... 5  
Tank trucks ..... 6  
Hopper trucks ..... 7  
Drums ..... 8  
Pipeline ..... 9  
Other (specify) ..... 10

b. If the listed substance is transported in pressurized tank cylinders, tank rail cars, or tank trucks, state the pressure of the tanks.

Tank cylinders ..... N/A mmHg  
Tank rail cars ..... N/A mmHg  
Tank trucks ..... N/A mmHg

☐ Mark (X) this box if you attach a continuation sheet.

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PART B RAW MATERIAL IN THE FORM OF A MIXTURE

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3.04 If you obtain the listed substance in the form of a mixture, list the trade name(s) of the mixture, the name of its supplier(s) or manufacturer(s), an estimate of the average percent composition by weight of the listed substance in the mixture, and the amount of mixture processed during the reporting year. N/A

CBI

☐

<u>Trade Name</u>	<u>Supplier or Manufacturer</u>	<u>Average % Composition by Weight (specify <math>\pm</math> % precision)</u>	<u>Amount Processed (kg/yr)</u>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>

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☐ Mark (X) this box if you attach a continuation sheet.

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PART C RAW MATERIAL VOLUME

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3.05 State the quantity of the listed substance used as a raw material during the  
CBI reporting year in the form of a class I chemical, class II chemical, or polymer, and  
the percent composition, by weight, of the listed substance.

☐

	Quantity Used (kg/yr)	% Composition by Weight of Listed Sub- stance in Raw Material (specify $\pm$ % precision)
Class I chemical	13971	100%
Class II chemical	N/A	N/A
Polymer	N/A	N/A

---

☐ Mark (X) this box if you attach a continuation sheet.

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## SECTION 4 PHYSICAL/CHEMICAL PROPERTIES

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### General Instructions:

If you are reporting on a mixture as defined in the glossary, reply to questions in Section 4 that are inappropriate to mixtures by stating "NA -- mixture."

For questions 4.06-4.15, if you possess any hazard warning statement, label, MSDS, or other notice that addresses the information requested, you may submit a copy or reasonable facsimile in lieu of answering those questions which it addresses.

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### PART A PHYSICAL/CHEMICAL DATA SUMMARY

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- 4.01 Specify the percent purity for the three major<sup>1</sup> technical grade(s) of the listed substance as it is manufactured, imported, or processed. Measure the purity of the CBI substance in the final product form for manufacturing activities, at the time you import the substance, or at the point you begin to process the substance.

☐

	<u>Manufacture</u>	<u>Import</u>	<u>Process</u>
Technical grade #1	<u>N/A</u> % purity	<u>N/A</u> % purity	<u>100</u> % purity
Technical grade #2	<u>N/A</u> % purity	<u>N/A</u> % purity	<u>N/A</u> % purity
Technical grade #3	<u>N/A</u> % purity	<u>N/A</u> % purity	<u>N/A</u> % purity

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<sup>1</sup>Major = Greatest quantity of listed substance manufactured, imported or processed.

- 4.02 Submit your most recently updated Material Safety Data Sheet (MSDS) for the listed substance, and for every formulation containing the listed substance. If you possess an MSDS that you developed and an MSDS developed by a different source, submit your version. Indicate whether at least one MSDS has been submitted by circling the appropriate response.

Yes ..... (1)

No ..... 2

Indicate whether the MSDS was developed by your company or by a different source.

Your company ..... 1

Another source ..... (2)

---

☒ Mark (X) this box if you attach a continuation sheet.

---

4.03 Submit a copy or reasonable facsimile of any hazard information (other than an MSDS) that is provided to your customers/users regarding the listed substance or any formulation containing the listed substance. Indicate whether this information has been submitted by circling the appropriate response.

Yes ..... 1  
 No ..... (2)

4.04 For each activity that uses the listed substance, circle all the applicable number(s) corresponding to each physical state of the listed substance during the activity listed. Physical states for importing and processing activities are determined at the time you import or begin to process the listed substance. Physical states for manufacturing, storage, disposal and transport activities are determined using the final state of the product.

CBI

[ ]

Activity	Physical State				
	Solid	Slurry	Liquid	Liquified Gas	Gas
Manufacture	1	2	3	4	5
Import	1	2	3	4	5
Process	(1)	2	3	4	5
Store	1	2	3	4	5
Dispose	1	2	3	4	5
Transport	1	2	3	4	5

[ ] Mark (X) this box if you attach a continuation sheet.



- 4.05 Particle Size -- If the listed substance exists in particulate form during any of the following activities, indicate for each applicable physical state the size and the percentage distribution of the listed substance by activity. Do not include particles  $\geq 10$  microns in diameter. Measure the physical state and particle sizes for importing and processing activities at the time you import or begin to process the listed substance. Measure the physical state and particle sizes for manufacturing storage, disposal and transport activities using the final state of the product.

CBI

☐

<u>Physical State</u>		<u>Manufacture</u>	<u>Import</u>	<u>Process</u>	<u>Store</u>	<u>Dispose</u>	<u>Transport</u>
Dust	<1 micron	N/A	N/A	N/A	N/A	N/A	N/A
	1 to <5 microns	N/A	N/A	N/A	N/A	N/A	N/A
	5 to <10 microns	N/A	N/A	N/A	N/A	N/A	N/A
Powder	<1 micron	N/A	N/A	N/A	N/A	N/A	N/A
	1 to <5 microns	N/A	N/A	N/A	N/A	N/A	N/A
	5 to <10 microns	N/A	N/A	N/A	N/A	N/A	N/A
Fiber	<1 micron	N/A N/A	N/A	N/A	N/A	N/A	N/A
	1 to <5 microns	N/A N/A	N/A	N/A	N/A	N/A	N/A
	5 to <10 microns	N/A N/A	N/A	N/A	N/A	N/A	N/A
Aerosol	<1 micron	N/A	N/A	N/A	N/A	N/A	N/A
	1 to <5 microns	N/A	N/A	N/A	N/A	N/A	N/A
	5 to <10 microns	N/A	N/A	N/A	N/A	N/A	N/A

☐ Mark (X) this box if you attach a continuation sheet.

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## SECTION 5 ENVIRONMENTAL FATE

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### PART A RATE CONSTANTS AND TRANSFORMATION PRODUCTS

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5.01 Indicate the rate constants for the following transformation processes.

a. Photolysis:

Absorption spectrum coefficient (peak) .... UK (1/M cm) at \_\_\_\_\_ nm

Reaction quantum yield,  $\phi$  ..... UK at \_\_\_\_\_ nm

Direct photolysis rate constant,  $k_p$ , at ... UK 1/hr \_\_\_\_\_ latitude

b. Oxidation constants at 25°C:

For  $^1O_2$  (singlet oxygen),  $k_{ox}$  ..... UK 1/M hr

For  $RO_2$  (peroxy radical),  $k_{ox}$  ..... UK 1/M hr

c. Five-day biochemical oxygen demand,  $BOD_5$  ... UK mg/l

d. Biotransformation rate constant:

For bacterial transformation in water,  $k_b$ ... UK 1/hr

Specify culture ..... UK

e. Hydrolysis rate constants:

For base-promoted process,  $k_b$  ..... UK 1/M hr

For acid-promoted process,  $k_A$  ..... UK 1/M hr

For neutral process,  $k_N$  ..... UK 1/hr

f. Chemical reduction rate (specify conditions) UK

g. Other (such as spontaneous degradation) ... UK

---

☐ Mark (X) this box if you attach a continuation sheet.

---

PART B PARTITION COEFFICIENTS

5.02 a. Specify the half-life of the listed substance in the following media.

<u>Media</u>	<u>Half-life (specify units)</u>
Groundwater	UK
Atmosphere	UK
Surface water	UK
Soil	UK

b. Identify the listed substance's known transformation products that have a half-life greater than 24 hours.

<u>CAS No.</u>	<u>Name</u>	<u>Half-life (specify units)</u>	<u>Media</u>
UK			in
			in
			in
			in

5.03 Specify the octanol-water partition coefficient,  $K_{ow}$  ... UK at 25°C  
 Method of calculation or determination ..... N/A

5.04 Specify the soil-water partition coefficient,  $K_d$  ..... UK at 25°C  
 Soil type ..... N/A

5.05 Specify the organic carbon-water partition coefficient,  $K_{oc}$  ..... UK at 25°C

5.06 Specify the Henry's Law Constant, H ..... UK atm-m<sup>3</sup>/mole

☐ Mark (X) this box if you attach a continuation sheet.

5.07 List the bioconcentration factor (BCF) of the listed substance, the species for which it was determined, and the type of test used in deriving the BCF.

<u>Bioconcentration Factor</u>	<u>Species</u>	<u>Test</u> <sup>1</sup>
UK		

<sup>1</sup>Use the following codes to designate the type of test:

F = Flowthrough  
S = Static

☐ Mark (X) this box if you attach a continuation sheet.

6.04 For each market listed below, state the quantity sold and the total sales value of  
CBI the listed substance sold or transferred in bulk during the reporting year.

☐ N/A

<u>Market</u>	<u>Quantity Sold or Transferred (kg/yr)</u>	<u>Total Sales Value (\$/yr)</u>
Retail sales	_____	_____
Distribution -- Wholesalers	_____	_____
Distribution -- Retailers	_____	_____
Intra-company transfer	_____	_____
Repackagers	_____	_____
Mixture producers	_____	_____
Article producers	_____	_____
Other chemical manufacturers or processors	_____	_____
Exporters	_____	_____
Other (specify) _____	_____	_____

6.05 Substitutes -- List all known commercially feasible substitutes that you know exist  
CBI for the listed substance and state the cost of each substitute. A commercially  
feasible substitute is one which is economically and technologically feasible to use  
in your current operation, and which results in a final product with comparable  
performance in its end uses.

☐

<u>Substitute</u>	<u>Cost (\$/kg)</u>
None known.	N/A
_____	_____
_____	_____
_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

## SECTION 7 MANUFACTURING AND PROCESSING INFORMATION

### General Instructions:

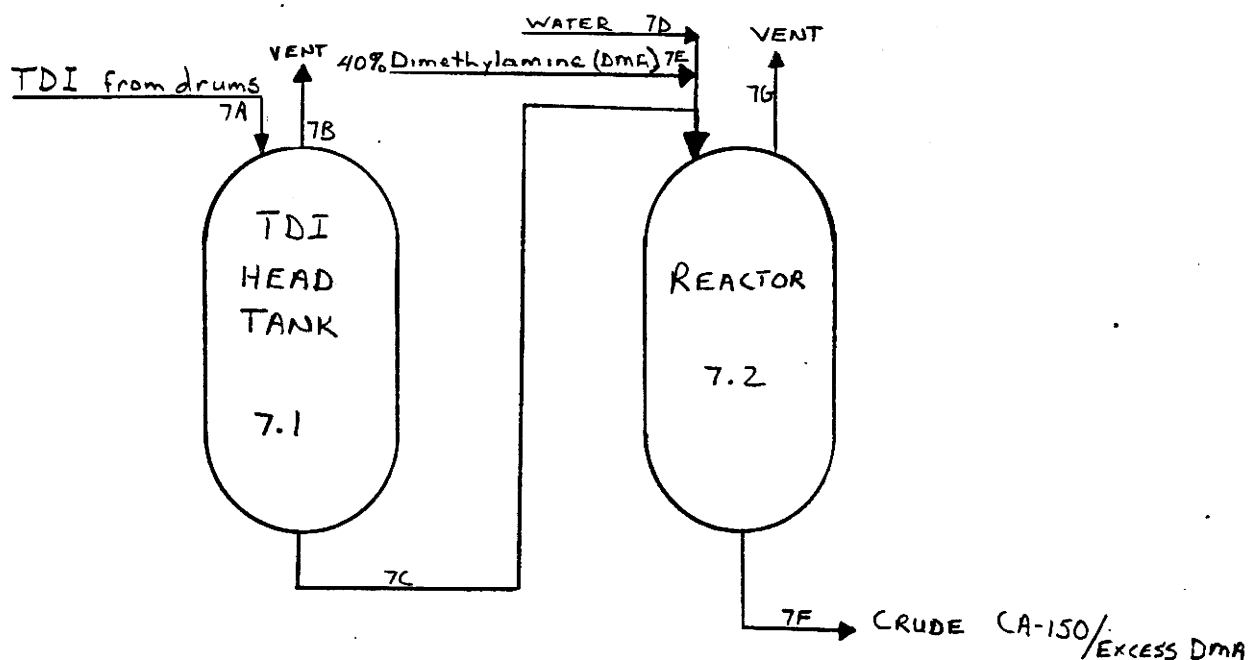
For questions 7.04-7.06, provide a separate response for each process block flow diagram provided in questions 7.01, 7.02, and 7.03. Identify the process type from which the information is extracted.

### PART A MANUFACTURING AND PROCESSING PROCESS TYPE DESCRIPTION

7.01 In accordance with the instructions, provide a process block flow diagram showing the major (greatest volume) process type involving the listed substance.

CBI

☐ Process type ..... CA-150 Production process

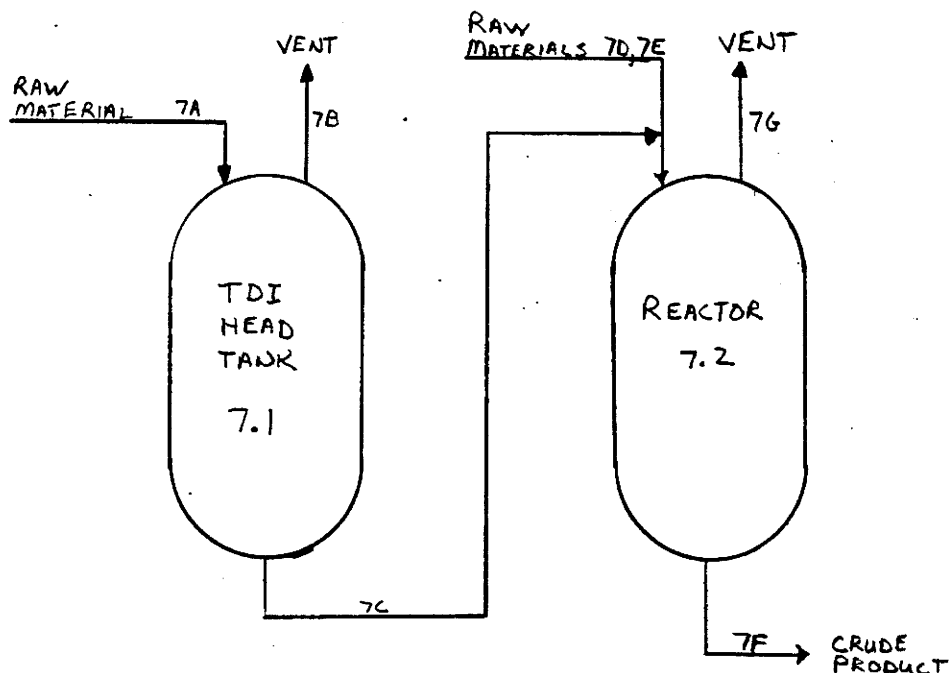


☐ Mark (X) this box if you attach a continuation sheet.

- 7.03 In accordance with the instructions, provide a process block flow diagram showing all process emission streams and emission points that contain the listed substance and which, if combined, would total at least 90 percent of all facility emissions if not treated before emission into the environment. If all such emissions are released from one process type, provide a process block flow diagram using the instructions for question 7.01. If all such emissions are released from more than one process type, provide a process block flow diagram showing each process type as a separate block.

CBI

☐ Process type ..... CA-150 PRODUCTION



☐ Mark (X) this box if you attach a continuation sheet.

**CBI**

[ ]

[illegible]

【一】



7.05 Describe each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type ..... CA-150 Production

<u>Process Stream ID Code</u>	<u>Process Stream Description</u>	<u>Physical State<sup>1</sup></u>	<u>Stream Flow (kg/yr)</u>
7A	TDI from drums	OL	13971
7B	Static Vent	GU	0.02074
7C	TDI Feed to Reactor	OL	13971
7D	Water Feed to Reactor	AL	57153
7E	40% Dimethylamine to Reactor	OL	17112
7F	Crude Product Line	SY	88224.35
7G	Static Vent	GU	11.65

<sup>1</sup>Use the following codes to designate the physical state for each process stream:

GC = Gas (condensable at ambient temperature and pressure)  
GU = Gas (uncondensable at ambient temperature and pressure)  
SO = Solid  
SY = Sludge or slurry  
AL = Aqueous liquid  
OL = Organic liquid  
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

☐ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the CBI instructions for further explanation and an example.)

☐ Process type ..... CA-150 Production

a. Process Stream ID Code	b. Known Compounds <sup>1</sup>	c. Concen- trations <sup>2,3</sup> (% or ppm)	d. Other Expected Compounds	e. Estimated Concentrations (% or ppm)
7A	TDI	100% E.W.	N/A	N/A
7B	TDI	100% E.W.	N/A	N/A
7C	TDI	100% E.W.	N/A	N/A
7D	Water	100% E.W.	N/A	N/A
7E	Dimethyl Amine	40% E.W.	N/A	N/A
	Water	60% E.W.	N/A	N/A
7F	CA-150 (crude)	28.77% E.W.	N/A	N/A
	Dimethylamine	0.47% E.W.	N/A	N/A
	Water	70.76% E.W.	N/A	N/A
7G	TDI	0.0005% E.W.	N/A	N/A
	Dimethylamine	89.99% E.W.	N/A	N/A
	Water	10.00% E.W.	N/A	N/A

7.06 continued below

☐ Mark (X) this box if you attach a continuation sheet.

7.06 (continued)

<sup>1</sup>For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column b. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.) N/A

Additive Package Number	Components of Additive Package	Concentrations (% or ppm)
1		
2		
3		
4		
5		

<sup>2</sup>Use the following codes to designate how the concentration was determined:

A = Analytical result  
E = Engineering judgement/calculation

<sup>3</sup>Use the following codes to designate how the concentration was measured:

V = Volume  
W = Weight

☐ Mark (X) this box if you attach a continuation sheet.

---

PART A RESIDUAL TREATMENT PROCESS DESCRIPTION

---

8.01 In accordance with the instructions, provide a residual treatment block flow diagram which describes the treatment process used for residuals identified in question 7.01.

CBI

☐ Process type ..... CA-150 Production

---

No residual streams are treated for reduction or removal of TDI.

---

☐ Mark (X) this box if you attach a continuation sheet.

---

8.05 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

[illegible]

☐ Mark (X) this box if you attach a continuation sheet.

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8.05 (continued)

<sup>1</sup>Use the following codes to designate the type of hazardous waste:

I = Ignitable  
C = Corrosive  
R = Reactive  
E = EP toxic  
T = Toxic  
H = Acutely hazardous

<sup>2</sup>Use the following codes to designate the physical state of the residual:

GC = Gas (condensable at ambient temperature and pressure)  
GU = Gas (uncondensable at ambient temperature and pressure)  
SO = Solid  
SY = Sludge or slurry  
AL = Aqueous liquid  
OL = Organic liquid  
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

---

8.05 continued below

---

☐ Mark (X) this box if you attach a continuation sheet.

---

8.05 (continued)

<sup>3</sup>For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column d. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.) N/A

Additive Package Number	Components of Additive Package	Concentrations (% or ppm)
<u>1</u>		
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		

<sup>4</sup>Use the following codes to designate how the concentration was determined:

A = Analytical result  
E = Engineering judgement/calculation

8.05 continued below

☐ Mark (X) this box if you attach a continuation sheet.

---

8.05 (continued)

<sup>5</sup>Use the following codes to designate how the concentration was measured:

V = Volume

W = Weight

<sup>6</sup>Specify the analytical test methods used and their detection limits in the table below. Assign a code to each test method used and list those codes in column e.

<u>Code</u>	<u>Method</u>	<u>Detection Limit</u> <u>(± ug/l)</u>
<u>1</u>	N/A	
<u>2</u>		
<u>3</u>		
<u>4</u>		
<u>5</u>		
<u>6</u>		

---

☐ Mark (X) this box if you attach a continuation sheet.

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**CBI**

a.	b.	c.	d.	e.		f.	g.
Stream ID	Waste Description	Management Method	Residual Quantities	Management of Residual (%)		Costs for Off-Site Management	Changes in Management Methods
<u>Code</u>	<u>Code<sup>1</sup></u>	<u>Code<sup>2</sup></u>	<u>(kg/yr)</u>	<u>On-Site</u>	<u>Off-Site</u>	<u>(per kg)</u>	<u>Methods</u>

<sup>2</sup>Use the codes provided in Exhibit 8-2 to designate the management methods

58

8.22 Describe the combustion chamber design parameters for each of the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s). N/A

☐

<u>Incinerator</u>	<u>Combustion Chamber Temperature (°C)</u>		<u>Location of Temperature Monitor</u>		<u>Residence Time In Combustion Chamber (seconds)</u>	
	<u>Primary</u>	<u>Secondary</u>	<u>Primary</u>	<u>Secondary</u>	<u>Primary</u>	<u>Secondary</u>
<u>1</u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>2</u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>3</u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes ..... 1

No ..... 2

8.23 Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

☐

<u>Incinerator</u>	<u>N/A</u>	<u>Air Pollution Control Device<sup>1</sup></u>	<u>Types of Emissions Data Available</u>
<u>1</u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>2</u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
<u>3</u>	<u>                    </u>	<u>                    </u>	<u>                    </u>

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes ..... 1

No ..... 2

<sup>1</sup>Use the following codes to designate the air pollution control device:

S = Scrubber (include type of scrubber in parenthesis)

E = Electrostatic precipitator

O = Other (specify) \_\_\_\_\_

☐ Mark (X) this box if you attach a continuation sheet.

PART A EMPLOYMENT AND POTENTIAL EXPOSURE PROFILE

9.01 Mark (X) the appropriate column to indicate whether your company maintains records on the following data elements for hourly and salaried workers. Specify for each data element the year in which you began maintaining records and the number of years the records for that data element are maintained. (Refer to the instructions for further explanation and an example.)

CBI

☐

Data Element	Data are Maintained for:		Year in Which Data Collection Began	Number of Years Records Are Maintained
	Hourly Workers	Salaried Workers		
Date of hire	X	X	1946	25
Age at hire	X	X	1946	25
Work history of individual before employment at your facility	X	X	1946	25
Sex	X	X	1946	25
Race	X	X	1946	25
Job titles	X	X	1946	25
Start date for each job title	X	X	1946	25
End date for each job title	X	X	1946	25
Work area industrial hygiene monitoring data				
Personal employee monitoring data				
Employee medical history	X	X	1946	Permanent
Employee smoking history	X	X	1985	Permanent
Accident history	X	X	1946	Permanent
Retirement date	X	X	1946	25
Termination date	X	X	1946	25
Vital status of retirees	X	X	1946	25
Cause of death data	X	X	1946	25

☐ Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

☐

a.	b.	c.	d.	e.
<u>Activity</u>	<u>Process Category</u>	<u>Yearly Quantity (kg)</u>	<u>Total Workers</u>	<u>Total Worker-Hours</u>
Manufacture of the listed substance	Enclosed	0.0	N/A	N/A
	Controlled Release	0.0	N/A	N/A
	Open	0.0	N/A	N/A
On-site use as reactant	Enclosed	0.0	N/A	N/A
	Controlled Release	13971	18	62
	Open	0.0	N/A	N/A
On-site use as nonreactant	Enclosed	0.0	N/A	N/A
	Controlled Release	0.0	N/A	N/A
	Open	0.0	N/A	N/A
On-site preparation of products	Enclosed	0.0	N/A	N/A
	Controlled Release	0.0	N/A	N/A
	Open	0.0	N/A	N/A

☐ Mark (X) this box if you attach a continuation sheet.

9.03 Provide a descriptive job title for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance.

CBI

☐

Labor Category

Descriptive Job Title

A

Production Unit Operators

B

Shift Supervisor

C

Control Lab Chemist

D

E

F

G

H

I

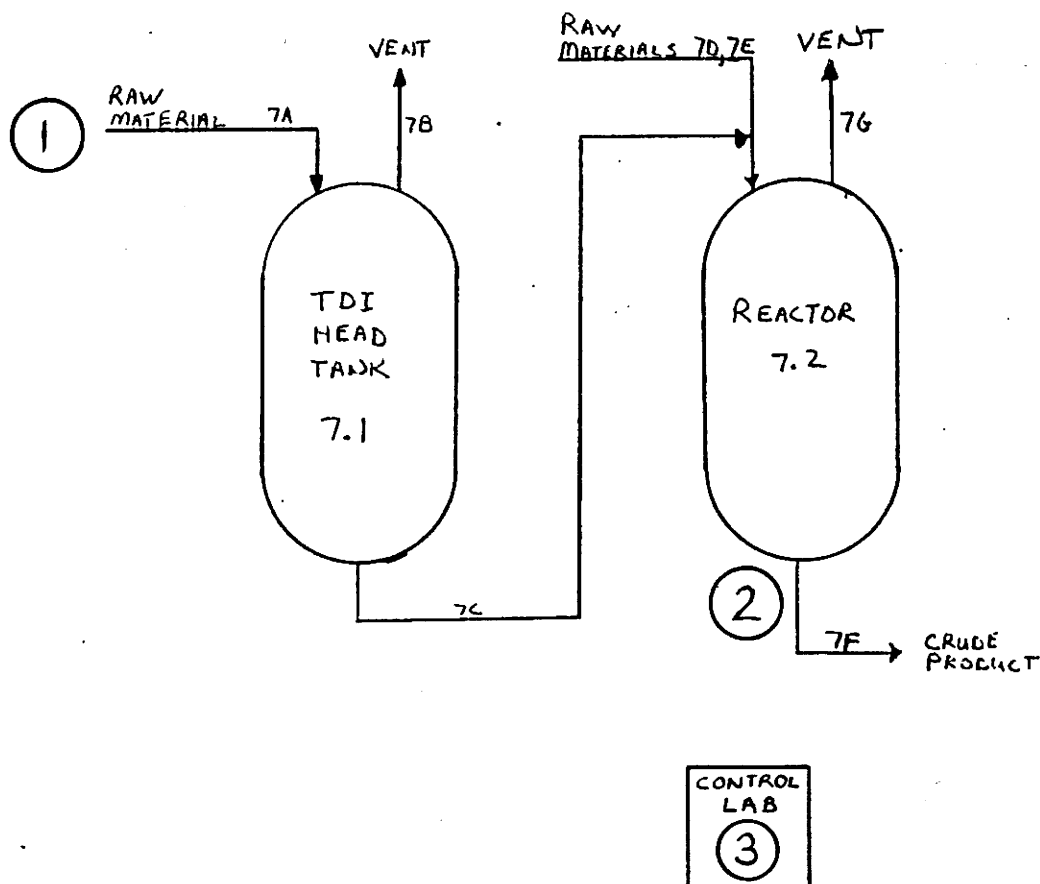
J

☐ Mark (X) this box if you attach a continuation sheet.

9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

CBI

☐ Process type ..... CA-150 PRODUCTION



☐ Mark (X) this box if you attach a continuation sheet.

9.05 Describe the various work area(s) shown in question 9.04 that encompass workers who may potentially come in contact with or be exposed to the listed substance. Add any additional areas not shown in the process block flow diagram in question 7.01 or 7.02. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type ..... CA-150 Production

Work Area ID

Description of Work Areas and Worker Activities

1	Drum unloading, vacuum feeding TDI to head tank.
2	Reactor Area, workers operate equipment and take samples.
3	Lab Area, Chemists test crude product for TDI.
4	
5	
6	
7	
8	
9	
10	

☐ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type ..... CA-150 Production

Work area ..... Drum unloading area. /

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance <sup>1</sup>	Average Length of Exposure Per Day <sup>2</sup>	Number of Days per Year Exposed
A	2	Breathing vapor, direct skin contact.	OL, GU	B	14
B	1	Breathing vapor.	GU	B	14
C	0	N/A	N/A	N/A	N/A

<sup>1</sup>Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)	SY = Sludge or slurry
GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)	AL = Aqueous liquid
SO = Solid	OL = Organic liquid
	IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

<sup>2</sup>Use the following codes to designate average length of exposure per day:

A = 15 minutes or less	D = Greater than 2 hours, but not exceeding 4 hours
B = Greater than 15 minutes, but not exceeding 1 hour	E = Greater than 4 hours, but not exceeding 8 hours
C = Greater than one hour, but not exceeding 2 hours	F = Greater than 8 hours

☒ Mark (X) this box if you attach a continuation sheet.



9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type ..... CA-150 Production

Work area ..... Reactor Area 2

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance <sup>1</sup>	Average Length of Exposure Per Day <sup>2</sup>	Number of Days per Year Exposed
A	2	Breathing vapor, direct skin contact.	OL, GU	A	14
B	1	Breathing vapor.	GU	A	14
C	0	N/A	N/A	N/A	N/A

<sup>1</sup>Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)  
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)  
 SO = Solid

SY = Sludge or slurry  
 AL = Aqueous liquid  
 OL = Organic liquid  
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

<sup>2</sup>Use the following codes to designate average length of exposure per day:

A = 15 minutes or less  
 B = Greater than 15 minutes, but not exceeding 1 hour  
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours  
 E = Greater than 4 hours, but not exceeding 8 hours  
 F = Greater than 8 hours

☒ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type ..... CA-150 Production

Work area ..... Control Lab Area 3

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance <sup>1</sup>	Average Length of Exposure Per Day <sup>2</sup>	Number of Days per Year Exposed
C	1	Breathing vapors, direct skin contact.	OL, GU	A	14

<sup>1</sup>Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)	SY = Sludge or slurry
GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)	AL = Aqueous liquid
SO = Solid	OL = Organic liquid
	IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

<sup>2</sup>Use the following codes to designate average length of exposure per day:

A = 15 minutes or less	D = Greater than 2 hours, but not exceeding 4 hours
B = Greater than 15 minutes, but not exceeding 1 hour	E = Greater than 4 hours, but not exceeding 8 hours
C = Greater than one hour, but not exceeding 2 hours	F = Greater than 8 hours

☐ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type ..... CA-150 Production

Work area ..... Drum Unloading Area /

Labor Category	8-hour TWA Exposure Level (ppm, mg/m <sup>3</sup> , other-specify)	15-Minute Peak Exposure Level (ppm, mg/m <sup>3</sup> , other-specify)
A	< 0.007	UK
B	UK	UK

☒ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type ..... CA-150 Production

Work area ..... *2*

Labor Category	8-hour TWA Exposure Level (ppm, mg/m <sup>3</sup> , other-specify)	15-Minute Peak Exposure Level (ppm, mg/m <sup>3</sup> , other-specify)
A	< 0.007 ppm	UK
B	UK	UK

☒ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type ..... CA-150 Production

Work area ..... Control Lab Area 3

<u>Labor Category</u>	<u>8-hour TWA Exposure Level (ppm, mg/m<sup>3</sup>, other-specify)</u>	<u>15-Minute Peak Exposure Level (ppm, mg/m<sup>3</sup>, other-specify)</u>
C	UK	UK

☐ Mark (X) this box if you attach a continuation sheet.

PART B WORK PLACE MONITORING PROGRAM

9.08 If you monitor worker exposure to the listed substance, complete the following table.

CBI

☐

<u>Sample/Test</u>	<u>Work Area ID</u>	<u>Testing Frequency (per year)</u>	<u>Number of Samples (per test)</u>	<u>Who Samples<sup>1</sup></u>	<u>Analyzed In-House (Y/N)</u>	<u>Number of Years Records Maintained</u>
Personal breathing zone	<u>1,2</u>	<u>&lt; 1</u>	<u>1</u>	<u>D</u>	<u>Y</u>	<u>10</u>
General work area (air)	<u>1</u>	<u>14</u>	<u>1</u>	<u>E</u>	<u>Y</u>	<u>10</u>
Wipe samples	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
Adhesive patches	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
Blood samples	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
Urine samples	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
Respiratory samples	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
Allergy tests	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
Other (specify)	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
Other (specify)	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
Other (specify)	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>

<sup>1</sup>Use the following codes to designate who takes the monitoring samples:

A = Plant industrial hygienist  
 B = Insurance carrier  
 C = OSHA consultant  
 D = Other (specify) I.H. Technician  
 E = Other Chemist

☐ Mark (X) this box if you attach a continuation sheet.

9.09 For each sample type identified in question 9.08, describe the type of sampling and analytical methodology used for each type of sample.

Sample Type	Sampling and Analytical Methodology
General Area	Air sampling pump attached to Draeger tube which is examined for color change upon contact with TDI vapor.

9.10 If you conduct personal and/or ambient air monitoring for the listed substance, specify the following information for each equipment type used.

CBI

Equipment Type <sup>1</sup>	Detection Limit <sup>2</sup>	Manufacturer	Averaging Time (hr)	Model Number
E	A	National Draeger Inc.	.05	CH304D

<sup>1</sup>Use the following codes to designate personal air monitoring equipment types:

- A = Passive dosimeter
- B = Detector tube
- C = Charcoal filtration tube with pump
- D = Other (specify) \_\_\_\_\_

Use the following codes to designate ambient air monitoring equipment types:

- E = Stationary monitors located within work area
- F = Stationary monitors located within facility
- G = Stationary monitors located at plant boundary
- H = Mobile monitoring equipment (specify) \_\_\_\_\_
- I = Other (specify) \_\_\_\_\_

<sup>2</sup>Use the following codes to designate detection limit units:

- A = ppm
- B = Fibers/cubic centimeter (f/cc)
- C = Micrograms/cubic meter ( $\mu\text{m}^3$ )

☐ Mark (X) this box if you attach a continuation sheet.

9.11 If you conduct routine medical tests for monitoring the health effects of exposure to the listed substance, specify the type and frequency of the tests.

CBI

☐

Test Description

Frequency  
(weekly, monthly, yearly, etc.)

No specific tests for TDI exposure. NA

☐ Mark (X) this box if you attach a continuation sheet.



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PART C ENGINEERING CONTROLS

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9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type ..... CA-150 Production

Work area ..... Drum Unloading Area /

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	Y	UK	Y	1989
General dilution	N			
Other (specify)				
	N			
Vessel emission controls	N			
Mechanical loading or packaging equipment	N			
Other (specify)				
	N			

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☒ Mark (X) this box if you attach a continuation sheet.

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PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type ..... CA-150 Production

Work area ..... Reactor Area 2

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	Y	1969	N	NA
General dilution	N			
Other (specify)				
	N			
Vessel emission controls	N			
Mechanical loading or packaging equipment	N			
Other (specify)				
	N			

☒ Mark (X) this box if you attach a continuation sheet.

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PART C ENGINEERING CONTROLS

---

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type ..... CA-150 Production

Work area ..... Control Lab Area 3

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>Y</u>	<u>UK</u>	<u>N</u>	<u>N/A</u>
General dilution	<u>N</u>	<u></u>	<u></u>	<u></u>
Other (specify)				
<u>Exhaust Load</u>	<u>Y</u>	<u>UK</u>	<u>N</u>	<u>N/A</u>
Vessel emission controls	<u>N</u>	<u></u>	<u></u>	<u></u>
Mechanical loading or packaging equipment	<u>N</u>	<u></u>	<u></u>	<u></u>
Other (specify)				
<u></u>	<u>N</u>	<u></u>	<u></u>	<u></u>

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☐ Mark (X) this box if you attach a continuation sheet.

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9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

N/A

☐ Process type ..... CA-150 Production

Work area .....

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)

☐ Mark (X) this box if you attach a continuation sheet.

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

[ ] Process type ..... CA-150 Production

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>	
Respirators	<u>Y</u>	} Full-face SCBA used.
Safety goggles/glasses	<u>N</u>	
Face shields	<u>N</u>	
Coveralls	<u>N</u>	
Bib aprons	<u>Y</u>	
Chemical-resistant gloves	<u>Y</u>	
Other (specify)		
<u>Plastic sleeves</u>	<u>Y</u>	

100A

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PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

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9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... CA-150 Production

Work area ..... Reactor Area 2

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>	
Respirators	<u>Y</u>	
Safety goggles/glasses	<u>N</u>	} Full face SCBA used.
Face shields	<u>N</u>	
Coveralls	<u>N</u>	
Bib aprons	<u>Y</u>	
Chemical-resistant gloves	<u>Y</u>	
Other (specify)		
<u>Plastic sleeves</u>	<u>Y</u>	
_____	_____	

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☒ Mark (X) this box if you attach a continuation sheet.

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9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

[ ] Process type ..... CA-150 Production

Work area ..... Control Lab Area 3

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	N
Safety goggles/glasses	Y
Face shields	N
Coveralls	N
Bib aprons	N
Chemical-resistant gloves	Y
Other (specify)	
	N/A

☐ Mark (X) this box if you attach a continuation sheet.

9.15 If workers use respirators when working with the listed substance, specify for each process type, the work areas where the respirators are used, the type of respirators used, the average usage, whether or not the respirators were fit tested, and the type and frequency of the fit tests. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type ..... CA-150 Production

Work Area	Respirator Type	Average Usage <sup>1</sup>	Fit Tested (Y/N)	Type of Fit Test <sup>2</sup>	Frequency of Fit Tests (per year)
1,2	Self contained breathing apparatus.	E	N	N/A	N/A

<sup>1</sup>Use the following codes to designate average usage:

A = Daily

B = Weekly

C = Monthly

D = Once a year

E = Other (specify) Whenever TDI exposure is possible.

<sup>2</sup>Use the following codes to designate the type of fit test:

QL = Qualitative

QT = Quantitative

☐ Mark (X) this box if you attach a continuation sheet.



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PART E WORK PRACTICES

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- 9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type ..... CA-150 Production

Work area ..... Drum Unloading Area /

Operators are trained in proper safety and handling techniques for TDI. When TDI is in use, the bay is barricaded with warning signs posted and a safety man in protective equipment stands by to keep unauthorized persons clear of the area. Air monitoring is done continually during unloading of TDI from drums.

- 9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type ..... CA-150 Production

Work area ..... Drum Unloading Area /

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
Sweeping	<u>X</u>	<u>          </u>	<u>          </u>	<u>          </u>
Vacuuming	<u>X</u>	<u>          </u>	<u>          </u>	<u>          </u>
Water flushing of floors	<u>X</u>	<u>          </u>	<u>          </u>	<u>          </u>
Other (specify)	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>                                </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>



Mark (X) this box if you attach a continuation sheet.

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PART E WORK PRACTICES

---

9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this CBI question and complete it separately for each process type and work area.

☐

Process type ..... CA-150 Production

Work area ..... Reactor Area 2

Operators are trained in proper safety and handling techniques for TDI. All  
unauthorized and unprotected persons are kept out of the area while sampling is  
being done.

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9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type ..... CA-150 Production

Work area ..... Reactor Area 2

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
Sweeping	<u>X</u>	<u>          </u>	<u>          </u>	<u>          </u>
Vacuuming	<u>X</u>	<u>          </u>	<u>          </u>	<u>          </u>
Water flushing of floors	<u>X</u>	<u>          </u>	<u>          </u>	<u>          </u>
Other (specify)	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>



Mark (X) this box if you attach a continuation sheet.

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PART E WORK PRACTICES

- 9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type ..... CA-150 Production

Work area ..... Control Lab Area 3

Chemists are trained in safety procedures and use good lab safety procedures while testing samples.

- 9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type ..... CA-150 Production

Work area ..... Control Lab Area 3

Housekeeping Tasks	Less Than Once Per Day	1-2 Times Per Day	3-4 Times Per Day	More Than 4 Times Per Day
Sweeping		X		
Vacuuming	X			
Water flushing of floors	X			
Other (specify)				

☐

Mark (X) this box if you attach a continuation sheet.

9.21 Do you have a written medical action plan for responding to routine or emergency exposure to the listed substance? N/A

Routine exposure

Yes ..... 1

No ..... 2

Emergency exposure

Yes ..... 1

No ..... 2

If yes, where are copies of the plan maintained?

Routine exposure: \_\_\_\_\_

Emergency exposure: \_\_\_\_\_

9.22 Do you have a written leak and spill cleanup plan that addresses the listed substance? Circle the appropriate response.

Yes ..... ①

No ..... 2

If yes, where are copies of the plan maintained? Operator's logsheets.

Has this plan been coordinated with state or local government response organizations? Circle the appropriate response.

Yes ..... 1

No ..... ②

9.23 Who is responsible for monitoring worker safety at your facility? Circle the appropriate response. N/A

Plant safety specialist ..... 1

Insurance carrier ..... 2

OSHA consultant ..... 3

Other (specify) \_\_\_\_\_ 4

☐ Mark (X) this box if you attach a continuation sheet.

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## SECTION 10 ENVIRONMENTAL RELEASE

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### General Instructions:

Complete Part E (questions 10.23-10.35) for each non-routine release involving the listed substance that occurred during the reporting year. Report on all releases that are equal to or greater than the listed substance's reportable quantity value, RQ, unless the release is federally permitted as defined in 42 U.S.C. 9601, or is specifically excluded under the definition of release as defined in 40 CFR 302.3(22). Reportable quantities are codified in 40 CFR Part 302. If the listed substance is not a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and, thus, does not have an RQ, then report releases that exceed 2,270 kg. If such a substance however, is designated as a CERCLA hazardous substance, then report those releases that are equal to or greater than the RQ. The facility may have answered these questions or similar questions under the Agency's Accidental Release Information Program and may already have this information readily available. Assign a number to each release and use this number throughout this part to identify the release. Releases over more than a 24-hour period are not single releases, i.e., the release of a chemical substance equal to or greater than an RQ must be reported as a separate release for each 24-hour period the release exceeds the RQ.

For questions 10.25-10.35, answer the questions for each release identified in question 10.23. Photocopy these questions and complete them separately for each release.

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### PART A GENERAL INFORMATION

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10.01 Where is your facility located? Circle all appropriate responses.

#### CBI

- ☐ Industrial area ..... 1
- Urban area ..... 2
- Residential area ..... 3
- Agricultural area ..... 4
- Rural area ..... (5)
- Adjacent to a park or a recreational area ..... 6
- Within 1 mile of a navigable waterway ..... (7)
- Within 1 mile of a school, university, hospital, or nursing home facility ..... 8
- Within 1 mile of a non-navigable waterway ..... (9)
- Other (specify) \_\_\_\_\_ 10

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☐ Mark (X) this box if you attach a continuation sheet.

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10.02 Specify the exact location of your facility (from central point where process unit is located) in terms of latitude and longitude or Universal Transverse Mercader (UTM) coordinates.

Latitude ..... ° ' "

Longitude ..... ° ' "

UTM coordinates ..... Zone \_\_\_\_\_, Northing 436317.1, Easting 473436.7

10.03 If you monitor meteorological conditions in the vicinity of your facility, provide the following information. N/A

Average annual precipitation ..... inches/year

Predominant wind direction .....

10.04 Indicate the depth to groundwater below your facility. N/A

Depth to groundwater ..... meters

10.05 For each on-site activity listed, indicate (Y/N/NA) all routine releases of the listed substance to the environment. (Refer to the instructions for a definition of CBI Y, N, and NA.)

☐

On-Site Activity	Environmental Release		
	Air	Water	Land
Manufacturing	N/A	N/A	N/A
Importing	N/A	N/A	N/A
Processing	Y	N	N
Otherwise used	N/A	N/A	N/A
Product or residual storage	N/A	N/A	N/A
Disposal	N/A	N/A	N/A
Transport	N/A	N/A	N/A

☐ Mark (X) this box if you attach a continuation sheet.

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PART B RELEASE TO AIR

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- 10.09 Point Source Emissions -- Identify each emission point source containing the listed substance in terms of a Stream ID Code as identified in your process block or residual treatment block flow diagram(s), and provide a description of each point source. Do not include raw material and product storage vents, or fugitive emission sources (e.g., equipment leaks). Photocopy this question and complete it separately for each process type.

CBI

☐

Process type ..... CA-150 Production

Point Source  
ID Code

Description of Emission Point Source

7B

TDI Head Tank Vent

7I

Reactor Vent

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☐ Mark (X) this box if you attach a continuation sheet.

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☐ Mark (X) this box if you attach a continuation sheet.

10.10 Emission Characteristics - - Characterize the emissions for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

Point Source ID Code	Physical State <sup>1</sup>	Average Emissions (kg/day)	Frequency <sup>2</sup> (days/yr)	Duration <sup>3</sup> (min/day)	Average Emission Factor <sup>4</sup>	Maximum Emission Rate (kg/min)	Maximum Emission Rate Frequency (events/yr)	Maximum Emission Rate Duration (min/event)
7B	V	0.00148	14	60	N/A	0.000025	28	30
7G	V	0.0000042	14	480	N/A	≈ 0	14	480

<sup>1</sup>Use the following codes to designate physical state at the point of release:

G = Gas; V = Vapor; P = Particulate; A = Aerosol; O = Other (specify) \_\_\_\_\_

<sup>2</sup>Frequency of emission at any level of emission

<sup>3</sup>Duration of emission at any level of emission

<sup>4</sup>Average Emission Factor — Provide estimated (± 25 percent) emission factor (kg of emission per kg of production of listed substance)



**CBI**

[ ]

[illegible]<sup>2</sup>Width of attached or adjacent building

H = Horizontal

V = Vertical

☐ Mark (X) this box if you attach a continuation sheet.

10.12 If the listed substance is emitted in particulate form, indicate the particle size distribution for each Point Source ID Code identified in question 10.09. Photocopy this question and complete it separately for each emission point source.

CBI

N/A

☐

Point source ID code .....

Size Range (microns)

Mass Fraction (% ± % precision)

< 1

≥ 1 to < 10

≥ 10 to < 30

≥ 30 to < 50

≥ 50 to < 100

≥ 100 to < 500

≥ 500

Total = 100%

☐ Mark (X) this box if you attach a continuation sheet.

PART C FUGITIVE EMISSIONS

10.13 Equipment Leaks -- Complete the following table by providing the number of equipment types listed which are exposed to the listed substance and which are in service according to the specified weight percent of the listed substance passing through the component. Do this for each process type identified in your process block or residual treatment block flow diagram(s). Do not include equipment types that are not exposed to the listed substance. If this is a batch or intermittently operated process, give an overall percentage of time per year that the process type is exposed to the listed substance. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type ..... CA-150 Production

Percentage of time per year that the listed substance is exposed to this process type ..... 1.44 %

Equipment Type	Number of Components in Service by Weight Percent of Listed Substance in Process Stream					Greater than 99%
	Less than 5%	5-10%	11-25%	26-75%	76-99%	
Pump seals <sup>1</sup>						
Packed	N/A	N/A	N/A	N/A	N/A	N/A
Mechanical	N/A	N/A	N/A	N/A	N/A	N/A
Double mechanical <sup>2</sup>	N/A	N/A	N/A	N/A	N/A	N/A
Compressor seals <sup>1</sup>	N/A	N/A	N/A	N/A	N/A	N/A
Flanges	11	N/A	17	N/A	N/A	28
Valves						
Gas <sup>3</sup>	6	N/A	N/A	N/A	N/A	N/A
Liquid	N/A	N/A	4	N/A	N/A	15
Pressure relief devices <sup>4</sup> (Gas or vapor only)	2	N/A	N/A	N/A	N/A	N/A
Sample connections						
Gas	N/A	N/A	N/A	N/A	N/A	N/A
Liquid	N/A	N/A	2	N/A	N/A	1
Open-ended lines <sup>5</sup> (e.g., purge, vent)						
Gas	2	N/A	N/A	N/A	N/A	N/A
Liquid	N/A	N/A	1	N/A	N/A	1

<sup>1</sup>List the number of pump and compressor seals, rather than the number of pumps or compressors

10.13 continued on next page

☐ Mark (X) this box if you attach a continuation sheet.

## 10.13 (continued)

<sup>2</sup>If double mechanical seals are operated with the barrier (B) fluid at a pressure greater than the pump stuffing box pressure and/or equipped with a sensor (S) that will detect failure of the seal system, the barrier fluid system, or both, indicate with a "B" and/or an "S", respectively

<sup>3</sup>Conditions existing in the valve during normal operation

<sup>4</sup>Report all pressure relief devices in service, including those equipped with control devices

<sup>5</sup>Lines closed during normal operation that would be used during maintenance operations

10.14 Pressure Relief Devices with Controls -- Complete the following table for those pressure relief devices identified in 10.13 to indicate which pressure relief devices in service are controlled. If a pressure relief device is not controlled, enter "None" under column c.

[ ]

[illegible]

<sup>1</sup> Refer to the table in question 10.13 and record the percent range given under the heading entitled "Number of Components in Service by Weight Percent of Listed Substance" (e.g., <5%, 5-10%, 11-25%, etc.)

<sup>2</sup>The EPA assigns a control efficiency of 100 percent for equipment leaks controlled with rupture discs under normal operating conditions. The EPA assigns a control efficiency of 98 percent for emissions routed to a flare under normal operating conditions.

☐ Mark (X) this box if you attach a continuation sheet.

- 10.15 Equipment Leak Detection -- If a formal leak detection and repair program is in place, complete the following table regarding those leak detection and repair procedures. Photocopy this question and complete it separately for each process type. N/A

CBI

☐ Process type ..... CA-150 Production

<u>Equipment Type</u>	<u>Leak Detection Concentration (ppm or mg/m<sup>3</sup>) Measured at Inches from Source</u>	<u>Detection Device<sup>1</sup></u>	<u>Frequency of Leak Detection (per year)</u>	<u>Repairs Initiated (days after detection)</u>	<u>Repairs Completed (days after initiated)</u>
Pump seals					
Packed					
Mechanical					
Double mechanical					
Compressor seals					
Flanges					
Valves					
Gas					
Liquid					
Pressure relief devices (gas or vapor only)					
Sample connections					
Gas					
Liquid					
Open-ended lines					
Gas					
Liquid					

<sup>1</sup>Use the following codes to designate detection device:

POVA = Portable organic vapor analyzer

FPM = Fixed point monitoring

0 = Other (specify) \_\_\_\_\_

☐ Mark (X) this box if you attach a continuation sheet.

☐ Mark (X) this box if you attach a continuation sheet.

10.16 Raw Material, Intermediate and Product Storage Emissions - - Complete the following table by providing the information on each liquid raw material, intermediate, and product storage vessel containing the listed substance as identified in your process block or residual treatment block flow diagram(s). N/A

Vessel Type <sup>1</sup>	Floating Roof Seals <sup>2</sup>	Composition of Stored Materials <sup>3</sup>	Throughput (liters per year)	Vessel Filling		Vessel Inner Diameter (m)	Vessel Height (m)	Vessel Volume (l)	Operating Vessel Emission Controls <sup>4</sup>	Design Flow Rate <sup>5</sup>	Vent Diameter (cm)	Control Efficiency (%)	Basis for Estimate <sup>6</sup>
				Rate (gpm)	Duration (min)								

<sup>1</sup>Use the following codes to designate vessel type:

F = Fixed roof  
 CIF = Contact internal floating roof  
 NCIF = Noncontact internal floating roof  
 EFR = External floating roof  
 P = Pressure vessel (indicate pressure rating)  
 H = Horizontal  
 U = Underground

<sup>2</sup>Use the following codes to designate floating roof seals:

MS1 = Mechanical shoe, primary  
 MS2 = Shoe-mounted secondary  
 MS2R = Rim-mounted, secondary  
 LM1 = Liquid-mounted resilient filled seal, primary  
 LM2 = Rim-mounted shield  
 LMW = Weather shield  
 VM1 = Vapor mounted resilient filled seal, primary  
 VM2 = Rim-mounted secondary  
 VMW = Weather shield

<sup>3</sup>Indicate weight percent of the listed substance. Include the total volatile organic content in parenthesis

<sup>4</sup>Other than floating roofs

<sup>5</sup>Gas/vapor flow rate the emission control device was designed to handle (specify flow rate units)

<sup>6</sup>Use the following codes to designate basis for estimate of control efficiency:

C = Calculations  
 S = Sampling

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PART E NON-ROUTINE RELEASES

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10.23 Indicate the date and time when the release occurred and when the release ceased or was stopped. If there were more than six releases, attach a continuation sheet and list all releases. N/A

<u>Release</u>	<u>Date Started</u>	<u>Time (am/pm)</u>	<u>Date Stopped</u>	<u>Time (am/pm)</u>
<u>1</u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>2</u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>3</u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>4</u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>5</u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>6</u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>

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10.24 Specify the weather conditions at the time of each release. N/A

<u>Release</u>	<u>Wind Speed (km/hr)</u>	<u>Wind Direction</u>	<u>Humidity (%)</u>	<u>Temperature (°C)</u>	<u>Precipitation (Y/N)</u>
<u>1</u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>2</u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>3</u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>4</u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>5</u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
<u>6</u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>

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☐ Mark (X) this box if you attach a continuation sheet.

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## APPENDIX I: List of Continuation Sheets

Attach continuation sheets for sections of this form and optional information after this page. In column 1, clearly identify the continuation sheet by listing the question number to which it relates. In column 2, enter the inclusive page numbers of the continuation sheet for each question number.

[illegible]

☐ Mark (X) this box if you attach a continuation sheet.



# MATERIAL SAFETY DATA SHEET

CONTINUATION SHEET 4.02 g.25

## DIVISION ADDRESS

Mobay Chemical Corporation  
Polyurethane Division  
Penn Lincoln Parkway West  
Pittsburgh, Pennsylvania 15205

ISSUE DATE 5/17/84  
SUPERSEDES 3/23/82

TRANSPORTATION EMERGENCY: CALL CHEMTREC  
TELEPHONE NO: 800-424-9300; DISTRICT OF COLUMBIA: 202-463-7816

MOBAY NON-TRANSPORTATION EMERGENCY NO:  
412-923-1800

## I. PRODUCT IDENTIFICATION

PRODUCT NAME.....: Mondur TDS Grade I and II  
PRODUCT CODE NUMBER.....: E-003 and E-003-2000  
CHEMICAL FAMILY.....: Aromatic Isocyanate  
CHEMICAL NAME.....: \*Toluene Diisocyanate (TDI)-1-methyl-  
SYNONYMS.....: Benzene, 2,4-diisocyanato methyl-  
CAS NUMBER.....: 584-84-9  
T.S.C.A. STATUS.....: On Inventory  
CHEMICAL FORMULA.....:  $C_9H_6N_2O_2$

## II. HAZARDOUS INGREDIENTS

COMPONENTS: %:  
2,4-Toluene diisocyanate CAS #584-84-9 100

CURRENT LIMITS:  
ACGIH-TLV: 0.005 ppm TWA-  
(2,4 TDI) 0.02 ppm STEL  
OSHA-PEL: 0.02 ppm  
(2,4 TDI) Ceiling

## III. PHYSICAL DATA

APPEARANCE.....: Liquid @ 68°F (20°C)  
COLOR.....: Water white to pale yellow  
ODOR.....: Sharp, pungent (odor threshold greater than TLV)  
MOLECULAR WEIGHT.....: 174.2  
FREEZING POINT.....: Approximately 72°F (22°C)  
BOILING POINT.....: Approximately 484°F (251°C)  
VAPOR PRESSURE.....: Approximately 0.025 mmHg @ 25°C (77°F)  
VAPOR DENSITY (AIR=1).....: 6.0  
SPECIFIC GRAVITY.....: 1.22 @ 25°C  
BULK DENSITY.....: 10.18 lbs/gal  
SOLUBILITY IN WATER.....: Reacts slowly with water at normal room temperature to liberate CO<sub>2</sub> gas  
% VOLATILE BY VOLUME.....: Negligible

## IV. FIRE & EXPLOSION DATA

FLASH POINT °F(°C).....: 260°F (127°C) Pensky-Martens Closed Cup  
EXTINGUISHING MEDIA.....: Dry chemical (e.g. monoammonium phosphate, potassium sulfate, and potassium chloride), carbon dioxide, high expansion (proteinic) chemical foam, water spray for large fires. Caution: Reaction between water or foam and hot TDI can be vigorous.

### SPECIAL FIRE FIGHTING PROCEDURES/UNUSUAL FIRE OR EXPLOSION HAZARDS:

Full emergency equipment with self-contained breathing apparatus must be worn by fire fighters. During a fire, TDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. (See Section VIII.) At temperatures greater than 350°F (177°C) TDI forms carbodiimides with the release of CO<sub>2</sub> which can cause pressure build-up in closed containers. Explosive rupture is possible. Therefore, use cold water to cool fire-exposed containers.

Product Code: E-003 and E-003-2000

Page 1 of 4

## V. HEALTH EFFECTS DATA

### ANIMAL TOXICITY -

**INGESTION**.....: ORAL, LD50 5800 mg/kg (Rats)  
**SKIN CONTACT**.....: DERMAL, LD50 Greater than 10 g/kg (Rabbits)  
**INHALATION, LC50.(4 hr):** Range 12.7 to 66 ppm for 1-4 hour (Rat)  
**AQUATIC LC50.(24 hr)...** Greater than 500 mg/l (Daphnea, Limnea Invertebrates and Zebra Fish).  
**EYE EFFECTS**.....: Strongly irritating (Rabbits) OECD Guidelines.  
**SKIN EFFECTS**.....: Corrosive to the skin (Rabbits) OECD Guidelines.  
Skin sensitizer in guinea pigs. One study (available upon request) with guinea pigs reported that repeated skin contact with TDI caused respiratory sensitization  
**OTHER**.....: In a draft of a lifetime bioassay, the National Toxicology Program reported that TDI caused an increase in the number of tumors in exposed rats over those counted in non-exposed rats. The TDI was administered by gavage where TDI was introduced into the stomach through a tube. In lifetime inhalation studies conducted by Hazelton Labs for the International Isocyanate Institute, TDI did not demonstrate carcinogenic activity in rats or mice.

### HUMAN EFFECTS

**OF OVEREXPOSURE**.....: Inhalation. Inhalation of TDI vapors at concentrations above allowable limits can produce irritation of the mucous membranes in the respiratory tract resulting in runny nose, sore throat, productive cough and a reduction in lung function (breathing obstruction). Extensive exposures to concentrations well above these limits could lead to bronchitis, bronchospasm and, in rare cases, pulmonary edema (fluid in lungs). These effects are usually reversible. Another type of response is hyperreactivity or hypersensitivity, in which persons with a pre-existing, non-specific bronchial hyperreactivity or persons with a specific isocyanate hypersensitivity (as a result of previous repeated overexposure or a single large dose) can respond to small TDI concentrations at levels well below 0.02 ppm. Symptoms could be immediate or delayed and include chest tightness, wheezing, cough, shortness of breath or asthmatic attack. There are reports that, in individuals who have experienced asthmatic episodes, these symptoms may be brought on by exposure to dust, cold air and other irritants and may continue for some time even after removal from further TDI exposure. As reported, these symptoms can reoccur for weeks and, in severe cases, for a number of years. Hypersensitivity pneumonitis (with similar respiratory symptoms and fever which are delayed) has also been reported. One scientific study (available upon request) of workers in a TDI manufacturing plant reported that certain workers exposed to higher levels of TDI had larger declines in lung function (over the five-year period of the study) than other workers who experienced lower exposures to TDI. However, all of the worker groups in the study experienced excursions above the 0.02 ppm level.  
Skin. TDI reacts with skin protein and tissue moisture and can cause localized irritation as well as discoloration. Prolonged contact could produce reddening, swelling, or blistering and, in some individuals, skin sensitization resulting in dermatitis. Eyes. Liquid, vapors, or aerosols are severely irritating to the eyes and can cause tears. Corneal injury can occur which can be slow to heal; however, the damage is usually reversible. Ingestion. Ingestion could result in irritation and some corrosive action in the mouth, stomach tissue and digestive tract. (See Section V).

### VI. EMERGENCY & FIRST AID PROCEDURES

**EYE CONTACT**.....: Flush with clean, lukewarm water (low pressure) for at least 15 minutes, occasionally lifting eyelids, and obtain medical attention. Refer individual to an ophthalmologist for immediate follow-up.  
**SKIN CONTACT**.....: Remove contaminated clothing. Wash affected areas thoroughly with soap or tincture of green soap and water. Wash contaminated clothing thoroughly before reuse. For severe exposures, get under safety shower,

remove clothing under shower, get medical attention, and consult physician.

**INHALATION**.....: Move to an area free from risk of further exposure. Administer oxygen or artificial respiration as needed. Obtain medical attention. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Consult physician.

**INGESTION**.....: Do not induce vomiting. Give 250 ml of milk or water to drink. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Consult physician.

**NOTE TO PHYSICIAN**..... **Eyes**: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapors have produced reversible corneal epithelial edema impairing vision. **Skin**: Treat as contact dermatitis. If burned, treat as thermal burn. **Respiratory**: Treatment is essentially symptomatic.

#### **VII. EMPLOYEE PROTECTION RECOMMENDATIONS**

**EYE PROTECTION**.....: Liquid chemical goggles or full-face shield. Contact lenses should not be worn.

**SKIN PROTECTION**.....: Chemical resistant gloves (natural rubber, polyvinyl alcohol). Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep the area covered by the cream to a minimum.

**RESPIRATORY PROTECTION**...: A positive pressure air-supplied respirator is required whenever TDI concentrations exceed the Short-Term Exposure or Ceiling Limit of 0.02 ppm or exceed the 8-hour Time Weighted Average TLV of 0.005 ppm. An air-supplied respirator must also be worn during spray application, even if exhaust ventilation is used. For non-spray, short-term (less than 1 hour) situations where concentrations are near the TLV, a full-face, air-purifying respirator equipped with organic cartridges or canisters can be used. However, TDI has poor warning properties since the odor at which TDI can be smelled is substantially higher than 0.02 ppm. Therefore, proper fit and timely replacement of filter elements must be ensured. Observe OSHA regulations for respirator use (29 CFR 1910.134).

**MEDICAL SURVEILLANCE**.....: Medical supervision of all employees who handle or come in contact with TDI is recommended. These should include preemployment and periodic medical examinations with respiratory function tests (FEV, FVC as a minimum). Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with TDI. Once a person is diagnosed as sensitized to TDI, no further exposure can be permitted.

**VENTILATION**.....: Local exhaust should be used to maintain levels below the TLV whenever TDI is handled, processed, or spray-applied. At normal room temperatures (70°F) TDI levels quickly exceed the TLV unless properly ventilated. Standard reference sources regarding industrial ventilation (e.g., ACGIH Industrial Ventilation) should be consulted for guidance about adequate ventilation.

**MONITORING**: : TDI exposure levels must be monitored by accepted monitoring techniques to ensure that the TLV is not exceeded. (Contact Mobay for guidance) See Volume 1 (Chapter 17) and Volume 3 (Chapter 3) in Patty's Industrial Hygiene and Toxicology for sampling strategy.

**OTHER**.....: Safety showers and eyewash stations should be available. Educate and train employees in safe use of product. Follow all label instructions.

#### **VIII. REACTIVITY DATA**

**STABILITY**.....: Stable under normal conditions

**POLYMERIZATION**.....: May occur if in contact with moisture or other materials which react with isocyanates. Self-reaction may occur at temperatures over 350°F (177°C) or at lower temperatures if sufficient time is involved. See Section IV.

## **INCOMPATIBILITY**

**(MATERIALS TO AVOID)....:** Water, amines, strong bases, alcohols. Will cause some corrosion to copper alloys and aluminum.

## **HAZARDOUS DECOMPOSITION**

**PRODUCTS.....:** By high heat and fire: carbon monoxide, oxides of nitrogen, traces of HCN, TDI.

### **IX. SPILL OR LEAK PROCEDURES**

#### **STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:**

Cover the spill with sawdust, vermiculite, Fuller's earth or other absorbent material. Pour decontamination solution over spill area and allow to react for at least 10 minutes. Collect material in open top containers and add additional amounts of decontamination solution. Remove containers to a safe place, cover loosely, and allow to stand for 24 to 48 hours. Wash down spill area with decontamination solutions. Decontamination solutions: non-ionic surfactant Union Carbide's Tergitol TMN-10 (20%) and water (80%); or concentrated ammonia (3-8%), detergent (2%), and water (90%). During spill clean-up, a self-contained breathing apparatus or air-line respirator and protective clothing must be worn. (See Section VII.)

**WASTE DISPOSAL:** TDI is listed as a hazardous waste (No. U-233) under Section 261.33 (f) of RCRA. It must be disposed of in a permitted incinerator or landfill. Incineration is the preferred method. The residue from decontaminating a TDI spill is also classified as a hazardous waste under Section 261.3 (c)(2) of RCRA. Empty containers must be handled with care due to product residue. Decontaminate containers prior to disposal. DO NOT HEAT OR CUT EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH. (See Sections IV. and VIII.)

### **X. SPECIAL PRECAUTIONS & STORAGE DATA**

#### **STORAGE TEMPERATURE**

**(MIN./MAX.).....:** 70°F (21°C)/90°F (32°C)

**AVERAGE SHELF LIFE.....:** 12 months

#### **SPECIAL SENSITIVITY**

**(HEAT, LIGHT, MOISTURE):** If container is exposed to high heat, 375°F (177°C) it can be pressurized and possibly rupture. TDI reacts slowly with water to form polyureas and liberates CO<sub>2</sub> gas. This gas can cause sealed containers to expand and possibly rupture.

#### **PRECAUTIONS TO BE TAKEN**

**IN HANDLING AND STORING:** Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Avoid contact with skin and eyes. Do not breathe the vapors.

### **XI. SHIPPING DATA**

**D.O.T. SHIPPING NAME.....:** Toluene Diisocyanate  
**TECHNICAL SHIPPING NAME...:** Toluene Diisocyanate  
**D.O.T. HAZARD CLASS.....:** Poison B  
**UN/NA NO.....:** UN 2078  
**REPORTABLE QUANTITY.....:** 1 lb.  
**D.O.T. LABELS REQUIRED...:** Poison  
**D.O.T. PLACARDS.....:** Poison  
**FRT. CLASS BULK.....:** Toluene Diisocyanate  
**FRT. CLASS PKG.....:** Chemicals, NOI (Toluene Diisocyanate) NMFC 60000  
**PRODUCT LABEL.....:** Mondur TDS Product Label  
**REASON FOR ISSUE.....:** Revision onto new format  
**APPROVED BY.....:** J.H. Chapman/K.S. Booth  
**TITLE.....:** Industrial Hygiene Polyurethane Division  
**DATE APPROVED.....:** 5/9/84